PHENIX
WEEKLY PLANNING

4/24/2008

Don Lynch

Technical Support 2008

Shutdown '08 Schedule

Mu Trigger Review	Done, Action Items in progress
New Beam Pipe Design Review	Done, Action Items in progress
RPC Prototype engineeing & safety review	Done, Action Items in progress
CM Crane, MMN & sta. 1 scaffolding review	Done, Action Items in progress
RPC Prototype C tests (in tent)	in progress
Install/field fit CM access stairs	in progress
RPC Gap 0 and 5 base survey	Done, waiting for report
MuTr FEE upgrade/MuTr decaps WP	ready for review
Remove North access & MMN 4 lampshades	Done
Begin erecting MMN scaffold	Apr. 28
PO for Station 1 scaffold (+ Central shops)	in progress
RPC Prototype D tests (in tent)	Apr-May
Design RPC installation fixtures & MuTrigger FEE platforms	In progress
Install Station 1 North scaffolding	May 1-16
Station 1 North decaps	May 19-30
RICH air control move to DC Rack	In progress
Prep work for Mutrgr platforms (water/elec)	May-June
Modify Bridge	May (C. Pearson)

Shutdown '08 Schedule, cont'd

Prep work for RPC proptotype install move (7) MuID pipes move gap 5 south cable tray	May-June
MMN decaps	May-July
End of run Party	May 30
Prep RPC Proto, MuTrggr FEE N&S Racks	Apr-July
Install CM Crane Channel Supports	June-Sept
RPC engineering & safety review	mid June
MuTrigger FEE N Install	July 1-31
HBD Install	July-October
RPC prototype gas system	July 1-31
Move shielding for RPC prototype installation	July 1-31
RPC prototype cable routing & support	July 1-31
Modify crystal palace & vapor barrier	July 1-31
Install MuTrigger FEE N platform	Aug. 1-15
RPC prototype install	Aug.- Sep. (RPC3 – C. Pearson) (RPC2 – PHENIX)
Install RPC prototype rack in tunnel south	Aug. 1-29
Install Mutrigger FEE's in MMS for RPC test	Aug. 1-29
Install MuTrigger FEE South platform	Aug. 1-29
Install MuTrgr N&S rack cooling & electric	Aug. 1-29
Install MuTrigger N cooling water & air Aug.	

Technical Support 2008

Shutdown '08 Schedule, cont'd

Replace tunnel shielding	Sep. (C. Pearson)
Connect electronics/gas/water/air for RPC	Sep.
Install MuTrigger N& S racks	Sep.
CM Crane Install	
PC1 west work (needs planning)	Sep./Oct.
DC East?/West Repairs	Oct.
Remove all inst'n equipment(e.g. scaffolds)	Oct.
Gap 5 north piping and cable tray re-loc.	Oct.
Gap 2 north cable tray & crate re-mounts	Oct.
Prep for shutdown 2009	Nov
Prep for run 9	Oct
Close shield wall start shifts	Dec.
Start physics	Jan 1

Shutdown '08 Electrician Work

1) Install 30KVA UPS in Rack Room.
a) Remove existing 15kva UPS and relocate smaller 3KVA Safety System UPS.
b) Install new 30KVA UPS, 30 min. reserve capacity battery cabinet and maintenance bypass breaker box along west rack room wall.
c) Remove existing #6 UPS feeder cable and replace with larger #2 gauge cable (175 ft. run from feeder breaker to UPS and UPS to load distribution panel).

2) Install power and signal cable tray (ceiling suspended) for new DCM rack row – north of existing DCM racks.

3) Upgrade power capacity of Central Magnet power distribution for future bridge rack loads.

a) Remove existing 15KVA transformer and install 45KVA unit.
b) Install new (larger size) power cable from rack room to Central Magnet distribution breaker panels.

4) Install power feeds to RPC north & south tunnel racks from IR power panels.
NOTE: MuTr north power panel has no available breakers to feed north tunnel racks (south panel has spare breakers for use). More engineering analysis is required to determine if the north power panel should be increased in size or for installation of a sub panel branch can be accomplished.

5) Install 120 volt AC power drops into new control room annunciator alarm rack (rack room).

6) Install HVAC cooling and/or fan power circuits into RPC tent. Install fans/cooling units.

7) Assist in signal cable installation for MuTr/RPC upgrades as necessary.

Design/Safety Reviews

- RPC Stations 1, 2 and 3 ~ 6/1-6/30
- VTX/FVTX review ~ 6/1-8/31
- NCC Review ~ 6/1-8/31
- MMS scaffolding (< 2009)

Work Permit Requirements

- Standard Shutdown Commencement tasks (covered by approved procedures) Done
- MuTrigger FEE Upgrade (North & South) & MuTr Decaps, (including confined space for MMS & MMN and scaffold installation) done, waiting for approval
- CM Crane Installation
- RPC Prototype Installation
- HBD re-installation
- MuTrigger FEE rack platform installation
- PC1 Repairs
- (More will be needed – to be added to the list as appropriate)

MuTrig-FEE IR Installation Plan

Itaru Nakagawa
RIKEN/RBRC

IR Installing Items

	North	South	Total
Chassis	116	2	118
ADTX boards	232	4	236
LV cables	116	2	118
Optical Cables (duplex)	464	8	472
LV Rack	1	1	2
Optical Patch Bay	4	3	7

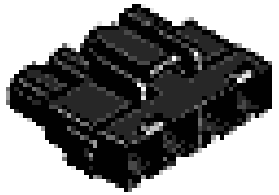
LV Cable

- Connector assembly ~ 2 weeks
- Bundling per Octant ~ 0.5 week
- Installation ~ 1 week

AWG12

+

Molex 42816



0.5 h / cable
(15min./connector)

St.1	St.2	St.3	South	Total
20	40	56	2	118

0.5 h × (116+spare) = 60 h
~ 6 h/day × 2 × 5 days
Frank + student(s)

LV Cable Length (North)

FEM LV Cable Lengths

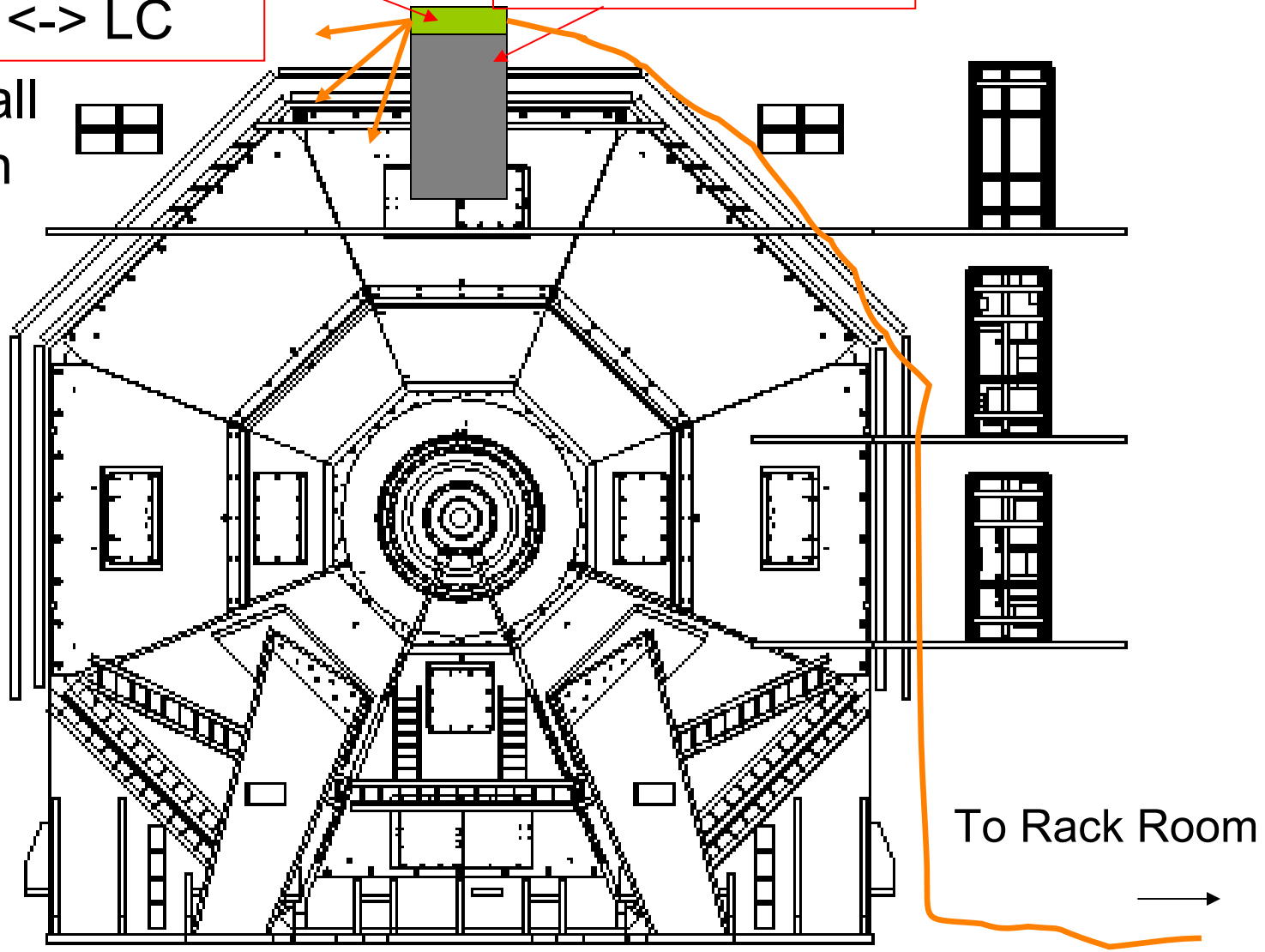
	inside magnet (meters)	oustide magnet to rack (meters)	Length in meters	Length in feet	Number Required	Total length needed (feet)
Octant 1 Station 1 (Q1):	5	13	18	59	5	295
Octant 2 Station 1 (Q2):	5	13	18	59		
Octant 3 Station 1 (Q2):	5	13	18	59	5	295
Octant 4 Station 1 (Q3):	5	13	18	59		
Octant 5 Station 1 (Q3):	5	13	18	59	5	295
Octant 6 Station 1 (Q4):	5	13	18	59		
Octant 7 Station 1 (Q4):	5	13	18	59	5	295
Octant 8 Station 1 (Q1):	5	13	18	59		
Octant 1 Station 2:	6.5	24	30.5	100	5	500
Octant 2 Station 2:	6.5	19.5	26	85	5	427
Octant 3 Station 2:	6.5	15	21.5	71	5	353
Octant 4 Station 2:	6.5	10.5	17	56	5	279
Octant 5 Station 2:	6.5	6.5	13	43	5	213
Octant 6 Station 2:	6.5	3	9.5	31	5	156
Octant 7 Station 2:	6.5	7.5	14	46	5	230
Octant 8 Station 2:	6.5	11.5	18	59	5	295
Octant 1 Station 3:	4.8	24	28.8	94	6	567
Octant 2 Station 3:	4.8	19.5	24.3	80	6	478
Octant 3 Station 3:	4.8	15	19.8	65	6	390
Octant 4 Station 3:	4.8	10.5	15.3	50	6	301
Octant 5 Station 3:	4.8	6.5	11.3	37	6	222
Octant 6 Station 3:	4.8	3	7.8	26	6	154
Octant 7 Station 3:	4.8	7.5	12.3	40	6	242
Octant 8 Station 3:	4.8	11.5	16.3	53	6	321
TOTAL:						**6309**
						1923 (meters)

Cable voltage drop ~ 0.26 Ω × 4.2A = 1.1V

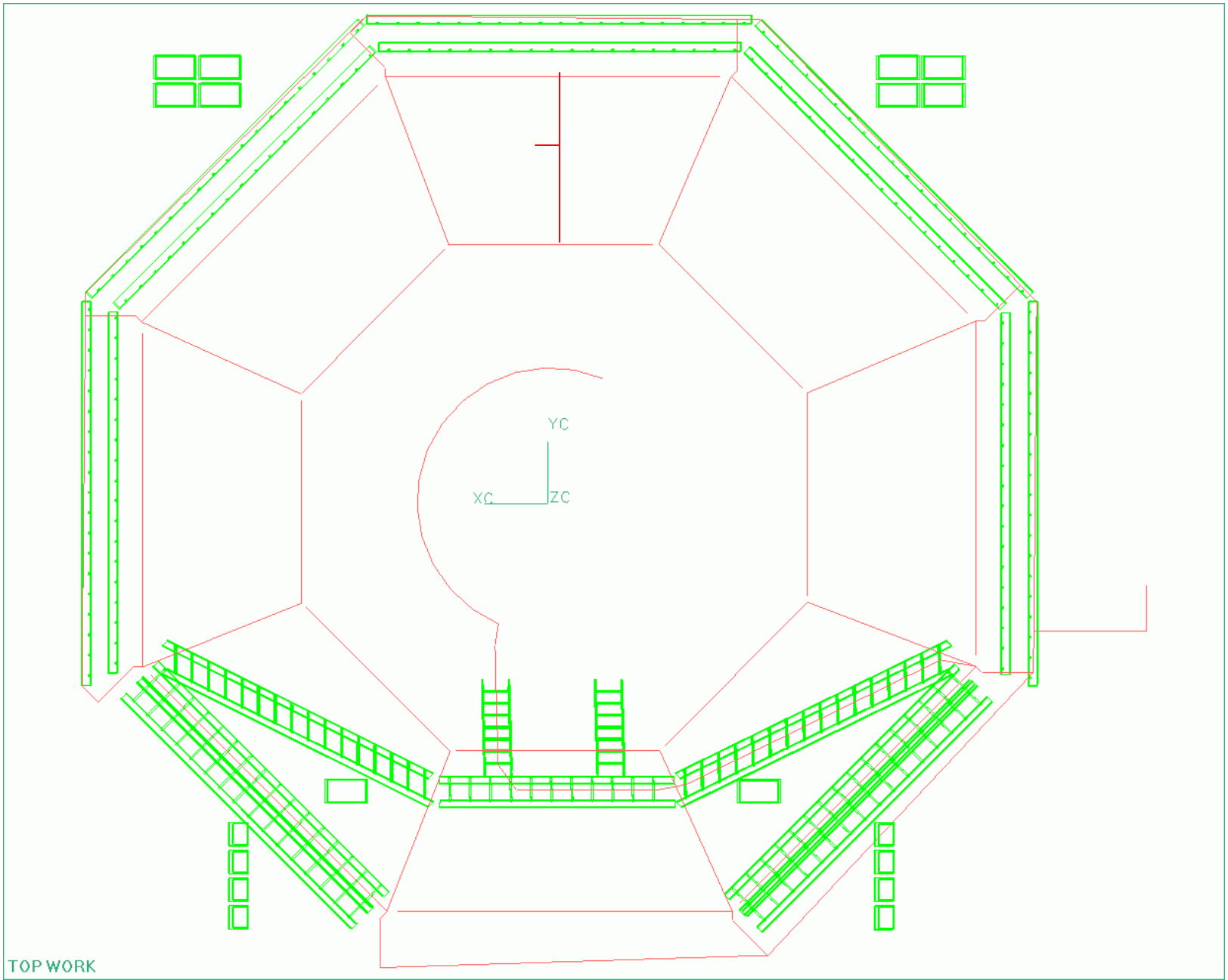
15m

GTM Patch & Cables

- Cables are all same length

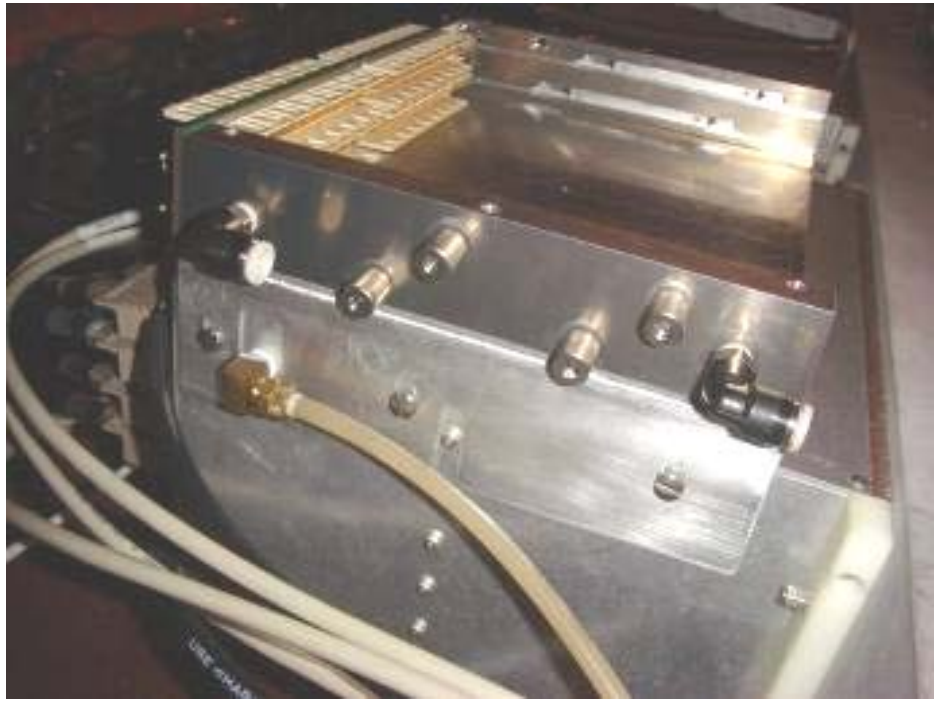


Running Cables



Chassis Install

Chassis will be ready for Installation by June.

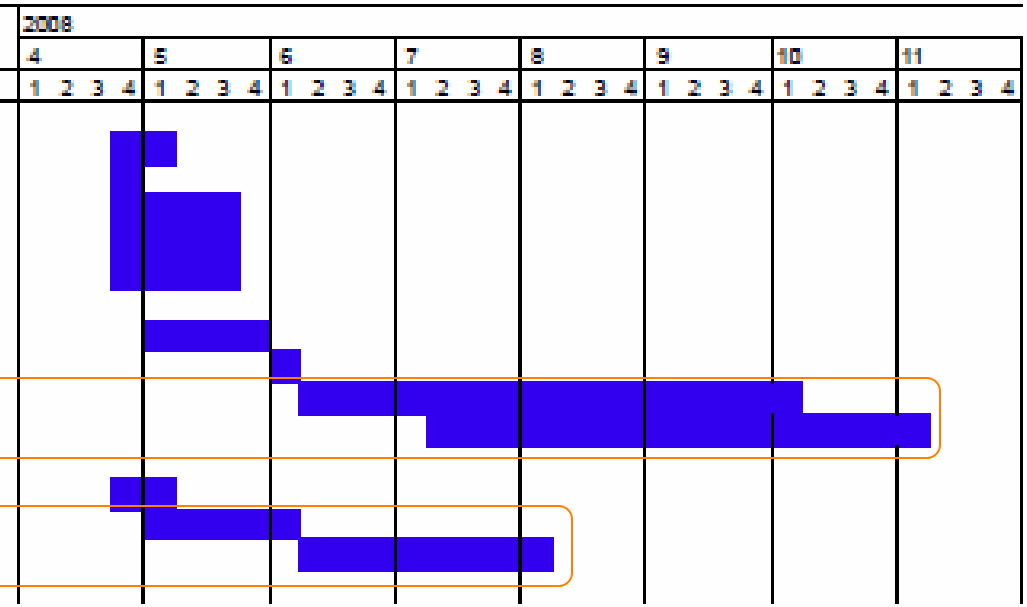


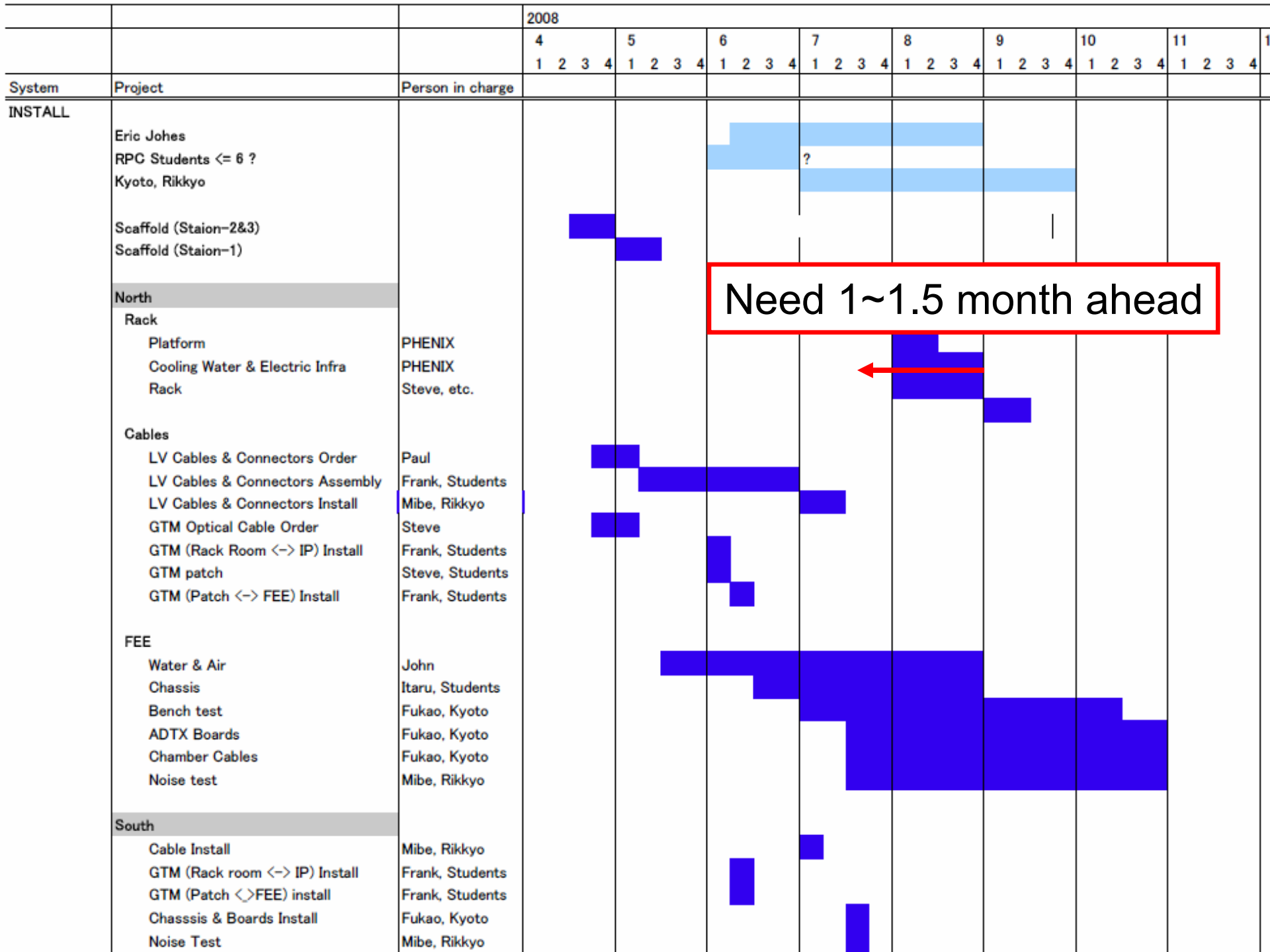
1. Leak Test at test bench
2. Mount on Existing FEE : 6 screws (10min.)
3. Cooling Water & Air (John, 15min.?)
4. Chamber Cable connection (30min.)
5. Board Install + cabling
6. Noise test

July ~ Aug.

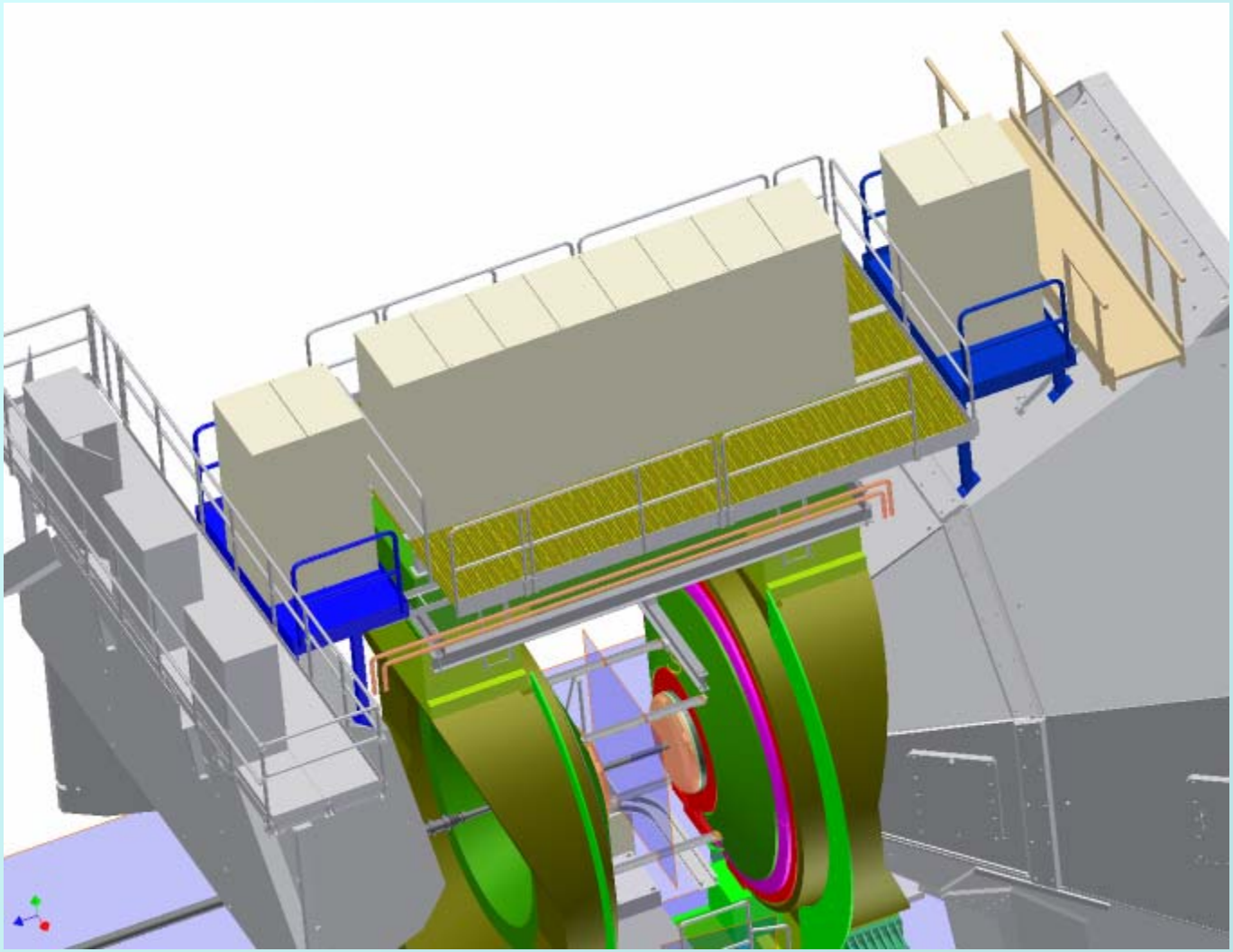
Production Schedule

Task	Quantity	Responsible persons
Finalize AD parameters / layout	N/A	Fukao
Finalize TX part	N/A	Karatsu, Nakamura, Rikkyo?
Make Interface Board	2	Fukao, Rikkyo?
Prepare DAQ	N/A	Fukao, Rikkyo?
Prepare analysis code	N/A	Fukao, Rikkyo?
ADTX production (final ver.)	2	RIKEN
Test ADTX final ver.	N/A	Fukao, Karatsu
Mass production (ADTX)	240	RIKEN
QA (ADTX)	240	2 persons
Finalize chassis (discuss with BNL)	N/A	Nakagawa
Mass production (Chassis)	130	RIKEN
QA (Chassis)	130	same persons as ADTX



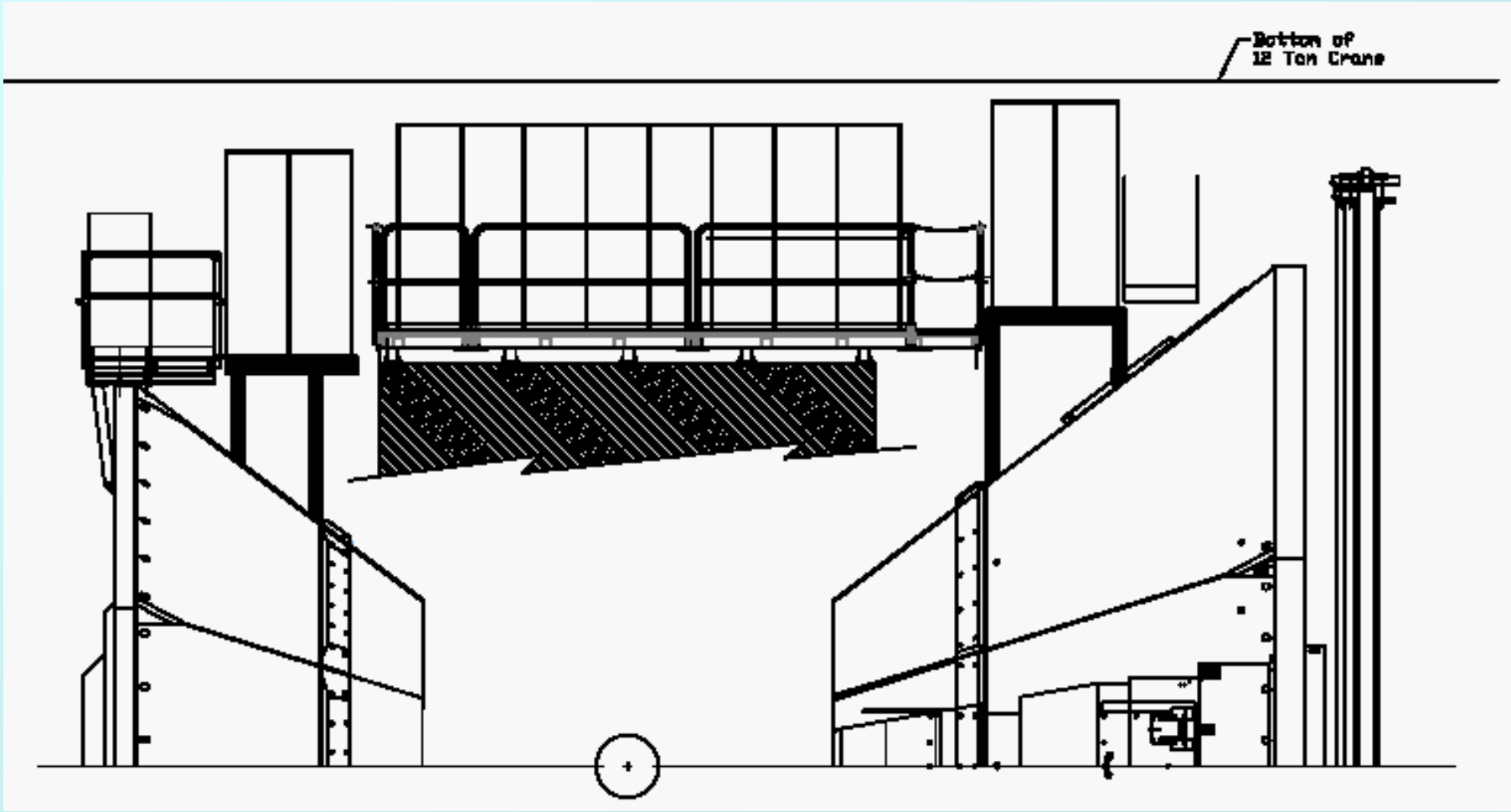

2008
4 5 6 7 8 9 10 11
1 2 3 4
System
Project
Person in charge
INSTALL
Eric Johes
RPC Students <= 6 ?
Kyoto, Rikkyo
?
Scaffold (Staion-2&3)
Scaffold (Staion-1)
Need 1~1.5 month ahead
North
Rack
Platform PHENIX
Cooling Water & Electric Infra PHENIX
Rack Steve, etc.
Cables
LV Cables & Connectors Order Paul
LV Cables & Connectors Assembly Frank, Students
LV Cables & Connectors Install Mibe, Rikkyo
GTM Optical Cable Order Steve
GTM (Rack Room <-> IP) Install Frank, Students
GTM patch Steve, Students
GTM (Patch <-> FEE) Install Frank, Students
FEE
Water & Air John
Chassis Itaru, Students
Bench test Fukao, Kyoto
ADTX Boards Fukao, Kyoto
Chamber Cables Fukao, Kyoto
Noise test Mibe, Rikkyo
South
Cable Install Mibe, Rikkyo
GTM (Rack room <-> IP) Install Frank, Students
GTM (Patch <_>FEE) install Frank, Students
Chasssis & Boards Install Fukao, Kyoto
Noise Test Mibe, Rikkyo

MuTrgr North FEE Rack Platform



Charlie sent new concept:

room for 2 racks on north and south, 8 racks on bridge (tight packed)



RPC Project Update/Requests

April 24, 2008

RPC Projects

- Factory preparations
  - Primary contact: Young Jin
  - Hopefully finish most work before prototype D parts arrive (i.e. before mid June)
- Prototype D assembling
  - Primary contact: Rusty
  - Finish by Sept 15
- Final Design of Production RPCs
  - Primary contact: Ralf
  - Design work nearing completion.
  - Review planned for June.

Summer Manpower

- Summer == June and July
- Summer students: 9 students from ACU and Muhlenberg
- Grad students at BNL: 7 from UIUC, ISU, UCR, Korea, …
- Dave, Ralf, Young Jin, Brett, Rusty, …
- Lot's of manpower during this time so we need to make the best use of it.

VIP Visit

- The president of Korea University will be visiting the RPC factory and PHENIX on May 13.
- This is an important visit as our collaborators at KODEL have requested additional support from the president to help produce our gas gaps.

Factory Requests (Disclaimer)

- All of the requests on the following slide are necessary.
- None of them are ‘critical path’ for prototype D.
- In general all of them would be good to have to gain experience during the assembly of prototype D.
- This would allow for improvements before production begins.
- All dates on the following slide are what would be best (but not required) for us.

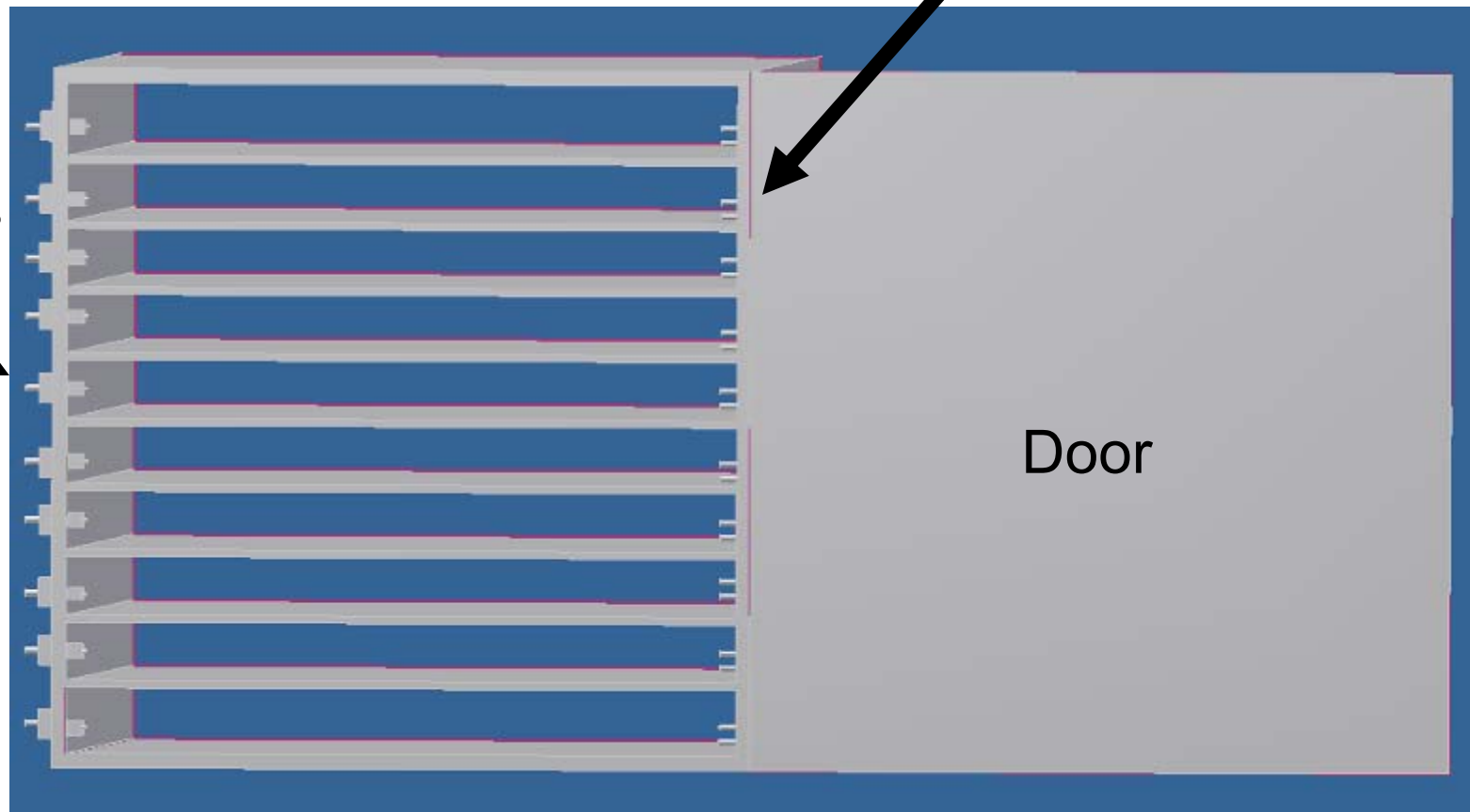
Specific Factory Requests

- Gap Storage: Mid June
  - plastic cover over 4'x8' shelf
  - Humidity/temp monitored, later controlled if necessary. (requires electrical outlet?)
- LV power: Mid June
  - Use old G-2 supplies or IR-type solution?
  - Need distribution system
- HV test rack: Mid June
  - Conceptual design is done. (see next slide)
  - Material selection and safety review???
- Rolling dispenser rack to hold Cu foil and mylar film: July 1
- Air Conditioning for the tent: asap
  - Low cost options?
  - Window unit vs. rolling unit?
- Rolling table to move gaps/modules: July
  - Summer student design in June.
- A working bathroom near the tent and approval to drink in the tent. (I've got a meeting with Ali tomorrow morning to discuss this.)

Gap HV Test Rack

Conceptual Design

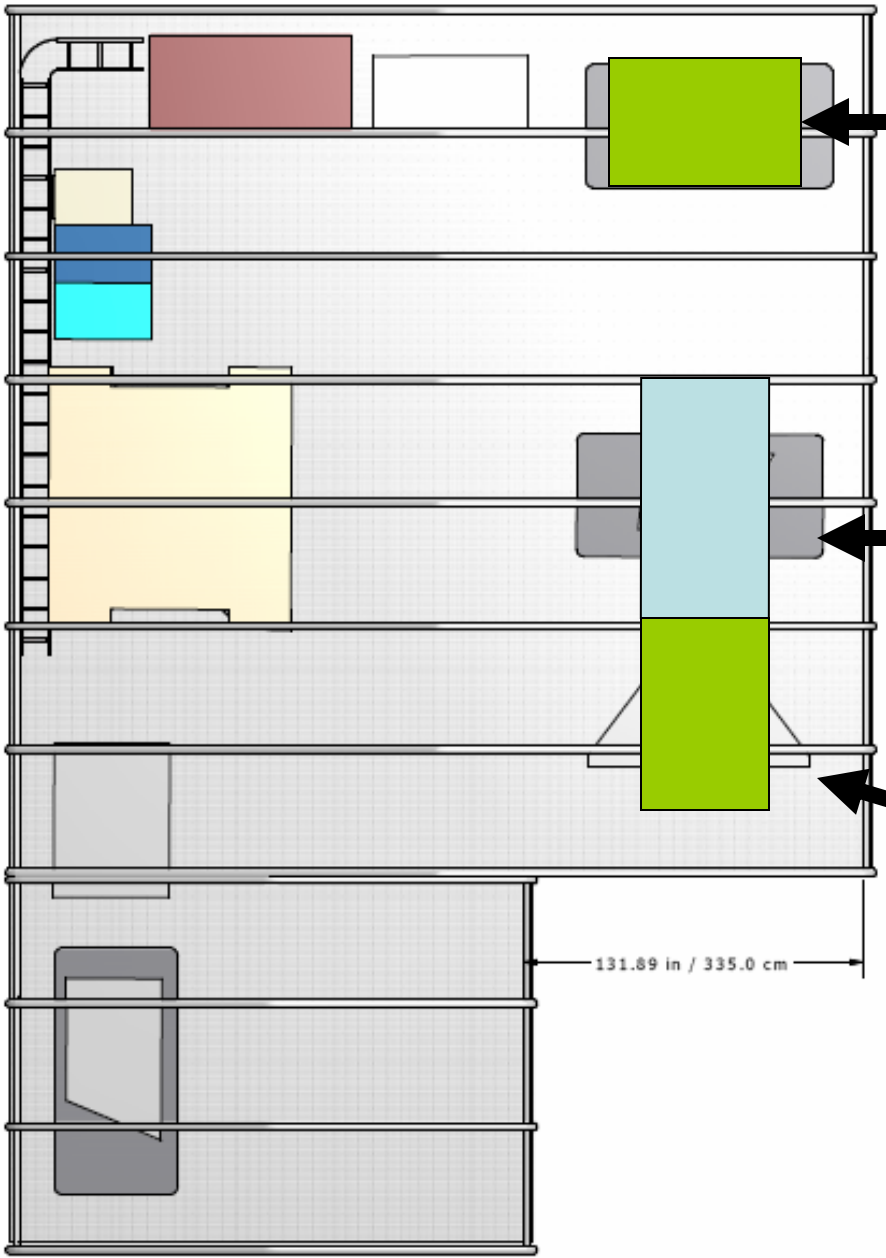
- Completely enclosed space
  - 10 shelves, each ~4 ft x 8 ft x .5 ft
- What material? Plastic ??



Tables in the Tent

- Tables being removed:
  - One optics table being removed.
  - PHENIX's special events table to be returned to 1008.
- Tables added:
  - One 4ft x 7ft table from physics hi-bay
  - Maybe the second identical table???
- Please let Young Jin and/or Ralf know when to expect the fork lift.

Table changes in the Tent



Optics table being removed and replaced with new table?

Rotate this table 90 degrees

Remove folding table

Add new small table to end

Schedule-Prototype D parts

- Gas Gaps (From KODEL in Korea):
  - The money for KODEL arrived last week.
  - Gas gaps are being produced.
  - All gaps are expected to arrive at BNL by June 17.
- Module frames, signal planes, and half octant structures (From CIAE in China):
  - The final paperwork for the order has been submitted.
  - Payment will be sent today or tomorrow.
  - All of these parts are expected to arrive at BNL by the end of June.
- Prototype D assembly begins at BNL on July 1.

Schedule - Assembly of Prototype D

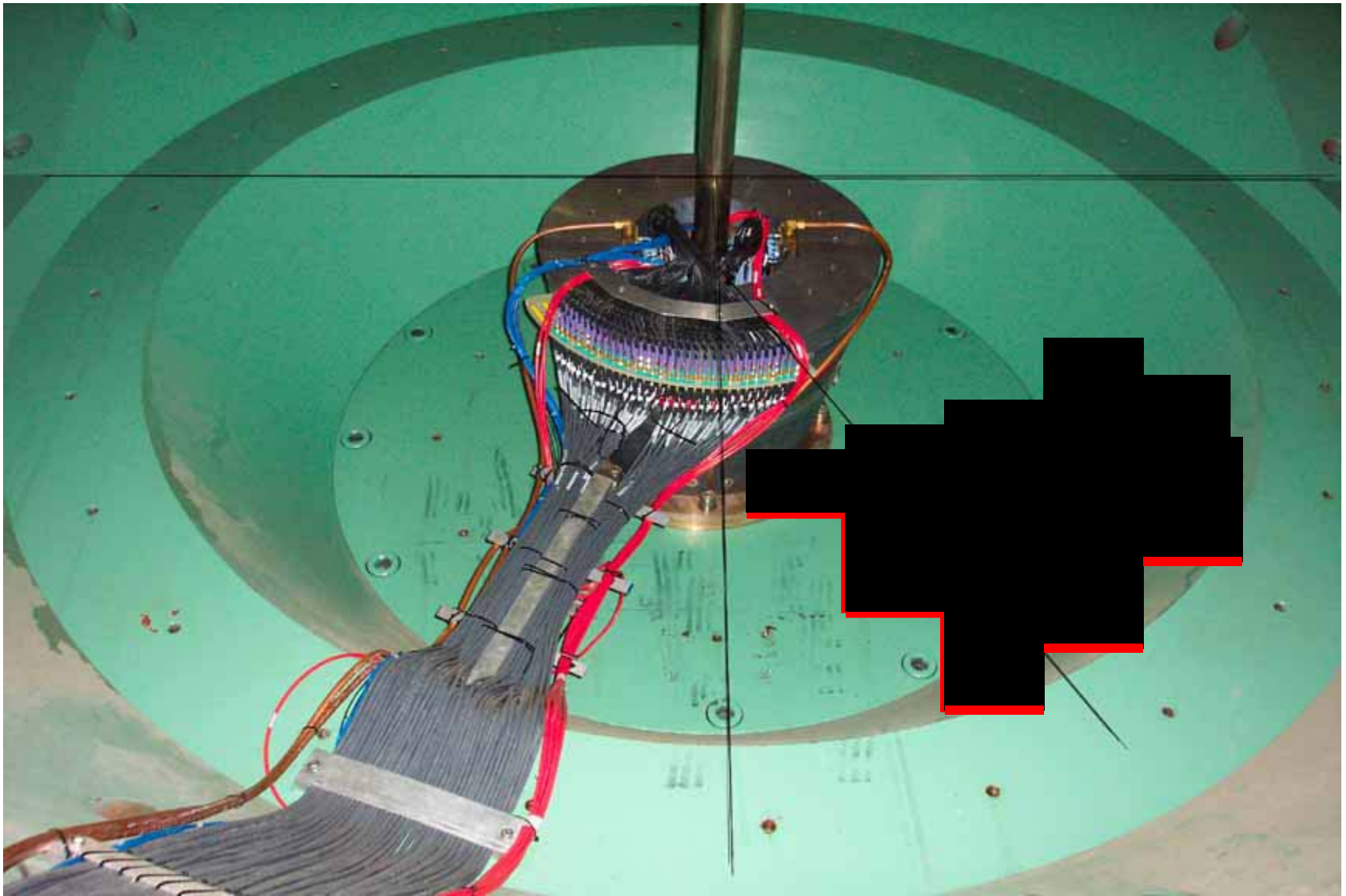
- July 1
  - Assemble modules (4 weeks)
    - Concurrently we will test build half octants*
- August 1
  - Test modules (2 weeks)
  - Assemble half octants (2 weeks)
    - Assume mock half octant is available Aug 15 *
- September 1
  - Test half octants (2 weeks)
- September 15: Ready for installation

* During work on half octants, we expect that we will make requests for help from PHENIX techs.

Absorber Test

- Old ideas … Pb or W shot, mercury, Cu plates, U plates, …
- Because this is just a test, we suggest that we go with the simplest and cheapest solution. (As Charlie, Don, … suggested.)
- Attach a shelf to the CM and stack Pb bricks.
  - Cover as much of one octant as possible.
  - Make the absorber as thick as possible, ideally we'd get 2 interaction lengths which would be ~34 cm.
  - I estimate this will be about 1.5 tons of Pb for one Octant.

Shelf & Pb brick concept



Questions from Don

- What's the plan for the absorber?
  - I think we've answered this.
- What are the dimensions and lifting points for Prototype D?
  - This is 'known'. Larry will send it to you soon.

RPC Prototype Review

Still waiting for dim's and lifting points

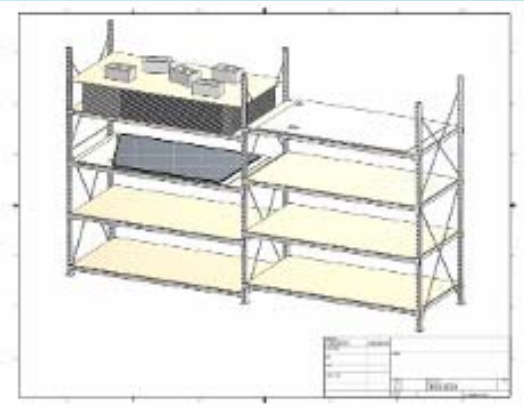
RPC group wants W shot for absorbers.
Waiting for dim. specs.

RPC Factory Support, cont.

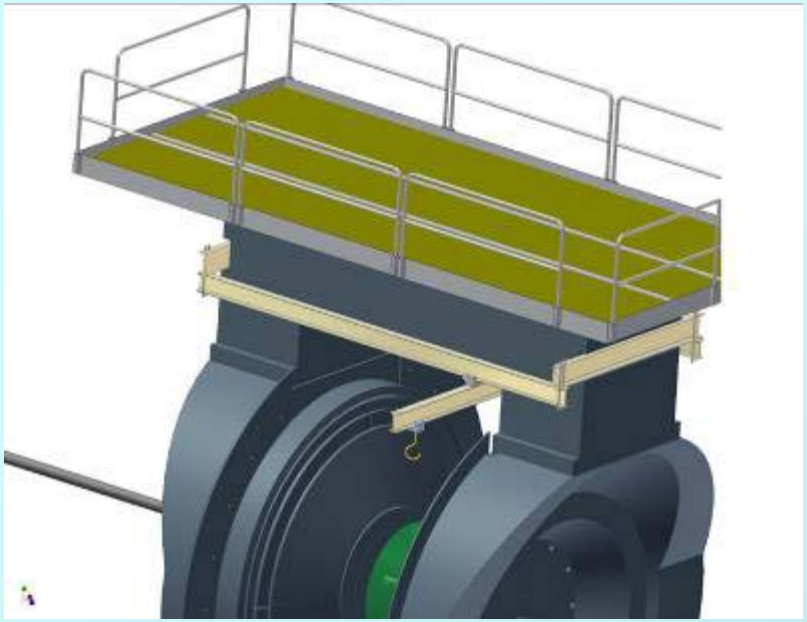
More frame mods for Proto C

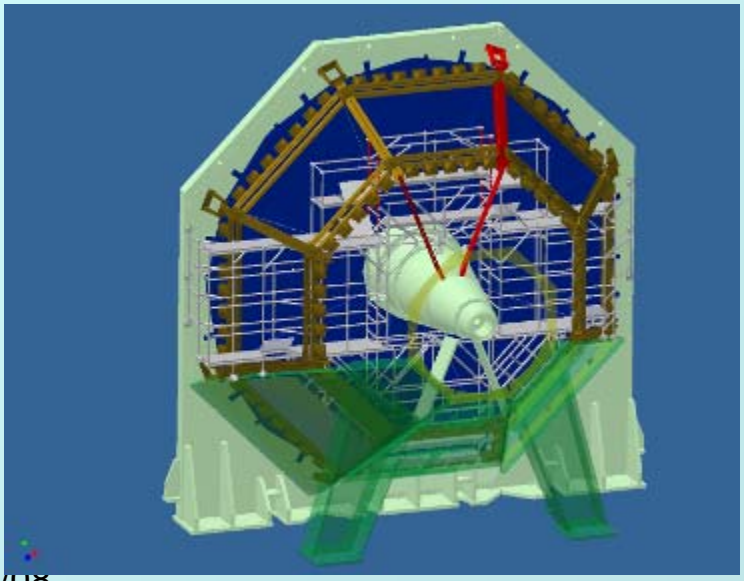
Still need specs for transport table

& gap/module storage



Combined CM Crane, MMN & Station 1 scaffolding Review

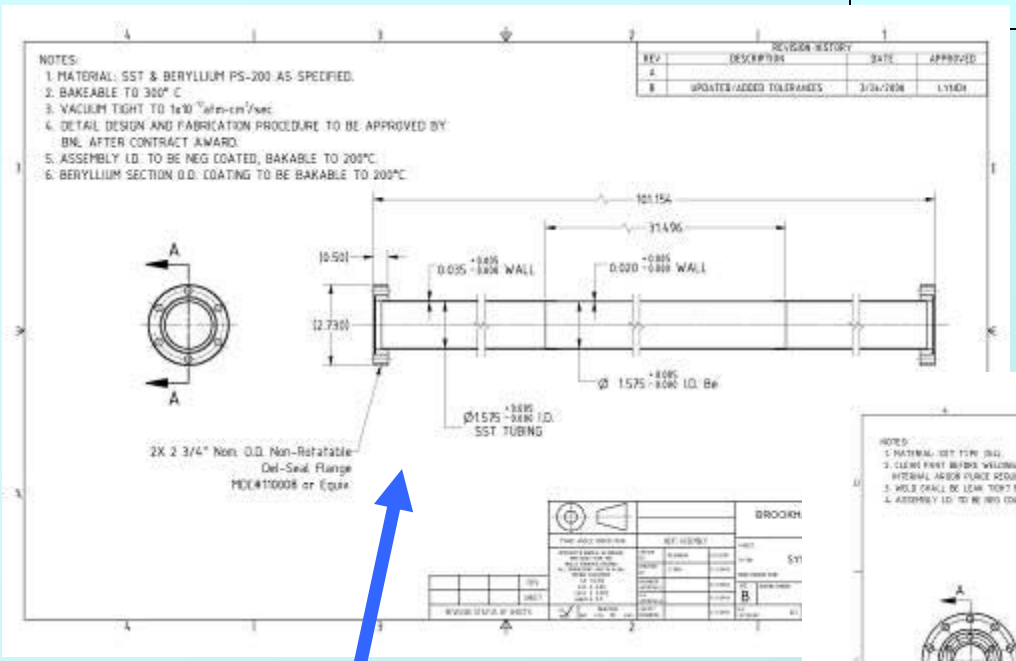




Meeting w G. McIntyre & D. Dowling today. All scaffold parts ordered.

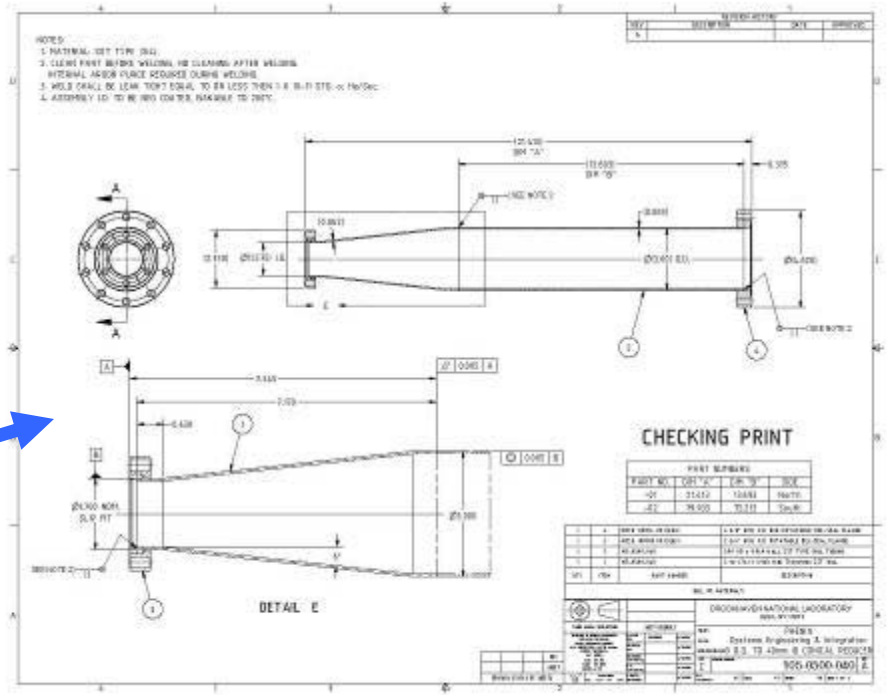
Rec'd info from Crane MFR. to be reviewed by C-A safety

New Beampipe Design & Review



BP designs at SAES for NEG quote. Meet w/ Mapes this afternoon.

SS/Be central beampipe



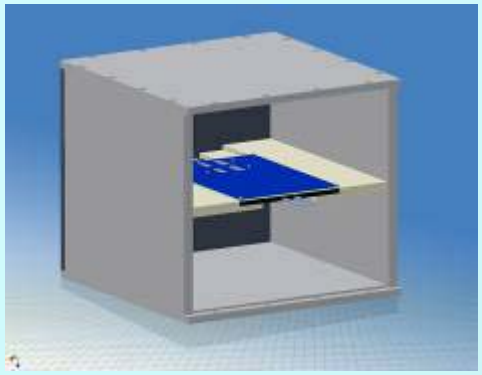
1-5/8" to 3" transitions

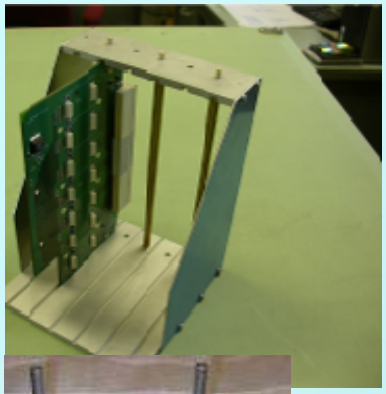
Drawings Done, C-A getting Quotes for NEG coating

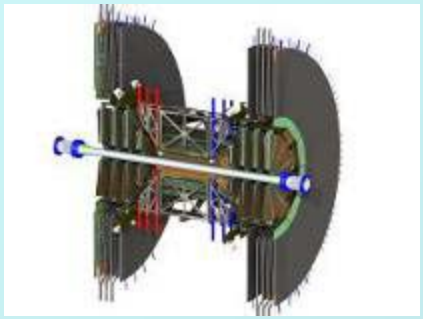
Technical Support 2008

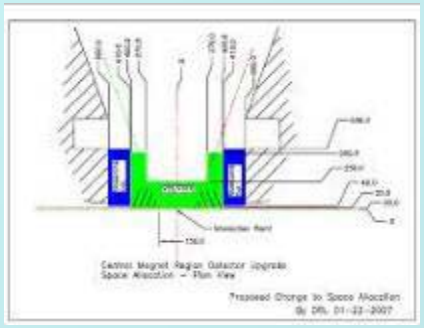
CM Access

Other Work









- VTX, FVTX and NCC prototype support
- Integration
- Physical and Rack space
- Infrastructure upgrades
- HBD getting closer?

Safety, Security, etc.

Due to the extended period of dry weather, the potential for a sever wildfire (brush fire) is VERY HIGH. *Rain showers are possible on Friday and would provide relief fro this concern.*

Until the rain comes, please pass this on to approipate members of your facility so that they may take proper precaution with outdoor actives that could start a fire.

Stop cutting and welding operations outside of the buildings (Fire Rescue has contacted any permit holder involving outdoor work).
Keep vehicles out of tall grass areas, the vehicle's exhaust can ignite the dried grass.
Portable generators are to be located on pavement and/or dirt. Exhausts are to be provided with spark arresting covers.
Bar-B-Qs shall be limited to paved or cleared areas. They are to be constantly attended. A pail of water or other extinguishing materials shall be in close proximity.
When outside buildings, extinguish cigarettes and other smoking materials in proper receptacles. DO NOT toss them on the ground, snuff them out.

Where To Find PHENIX Engineering Info

Next up:
Scaffolding

Click on the scaffold for a

Cautionary video

Links for the weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found on the web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm